Enhancing Access to Greenhouse Facilities in Compliance with ADA Guidelines

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Introduction to the Americans with Disabilities Act

- Titles of the ADA
  - Title I – Employment
  - Title II – Public Services (and public transportation)
  - Title III – Public Accommodations (and Commercial Facilities)
  - Title IV – Telecommunications
  - Title V – Miscellaneous
Safety Emphasis

Number of Fatalities, 2003-2010
Greenhouse, Nursery and Floriculture Production (NAICS 1114) 91
Nursery and Garden Centers (NAICS 44422) 69

- Falls (3)
- Harmful substance or environments (3)
- Contact with objects and equipment (9)
- Assault and violent acts (15)
- Transportation incidents (73)
Methods

- Reviewed the 2004 Americans with Disabilities Act Accessible Guidelines, Title III
- Focused on Safety Guidelines for falls, harmful substance or environments and contact with objects and equipment.
Findings

- Floor and Ground Surfaces
- Changes in Level
- Ramps
- Handrails
- Turning Space
- Clearances
- Doors, Doorways and Gates
- Reach Ranges
Floor and Ground Surfaces

- Floor and ground surfaces shall be stable, firm, and slip resistant.

- Openings in the floor or ground surfaces shall not be larger than ½ inch diameter.

- Elongated openings shall be placed so that the long dimension is perpendicular to the dominant direction of travel.
Changes in Level

- Changes in level of $\frac{1}{4}$ inch high maximum shall be permitted.

- Changes in level between $\frac{1}{4}$ inch high minimum and $\frac{1}{2}$ inch high maximum shall be beveled with a slope not steeper than 1:2.

- Changes in level greater than $\frac{1}{2}$ inch high shall be ramped.
Ramps

- Ramp runs shall have a running slope not steeper than 1:12.
- The rise for any ramp shall be thirty inches maximum.
- Ramps shall have landings at the top and the bottom of each ramp run.
- The landing clear width shall be at least as wide as the widest ramp run leading to the landing.
- The landing clear length shall be 60 inches long minimum.
- Ramp runs with a rise greater than six inches shall have handrails.
Handrails

- Top of gripping surfaces shall be between 34” and 38” above the finished floor.
- Clearances between the handrail and adjacent surfaces shall be at least 1.5”.
- Handrail gripping surfaces shall be continuous.
- Handrails shall not rotate.
Turning Space

- The turning space shall be a T-shaped space within a 60” square minimum with arms and base of 36” width, minimum. Each arm of the T shall be clear of obstructions 12” minimum in each direction and the base shall be clear of obstructions 24” minimum. The space shall be permitted to include knee and toe clearance.
Turning Space

- The turning space shall be a space of sixty inches diameter minimum. The space shall be permitted to include knee and toe clearance.
The clear width of the walking surface shall be 36” minimum.

An accessible route with a clear width less than 60” shall provide passing spaces at intervals of two hundred feet maximum.
Doors, Doorways and Gates

- Door openings shall provide a clear width of 32” minimum.
- Maneuvering clearances shall extend the full width of the doorway.
- Swinging doors and gates shall have maneuvering clearances.
- Door closers and gate closers shall be adjusted so that from the open position of 90°, the time required to move the door to a position of 12° from the latch is 5 seconds minimum.
Reach Ranges

- When a parallel approach to an element and the high side reach is over an obstruction, the height of the obstruction shall be 34” max and the depth of the obstruction shall be 24” max.

- The high side reach shall be 48” max for a reach depth of 10” max.

- When reach depth exceeds 10”, the high side reach shall be 46” max for a reach depth of 24” maximum.
Reach Ranges

- Where a forward reach is unobstructed, the high forward reach shall be 48” max and the low forward reach shall be 15” min above the finished floor.

- Where a high forward reach is over an obstruction, the high forward reach shall be 48” max where the reach depth is 20” max.

- Where the reach depth exceeds 20” the high forward reach shall be 44” max and the reach depth shall be 25” max.
Conclusion

- Independent Use
- Cases of emergency
- Improves the accessibility and reduces injury
Thank You

- References: